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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,229	07/01/2003	James David Hensley	10008165-4	4871

7590 09/06/2005

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
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Fort Collins, CO 80527-2400

EXAMINER

NGUYEN, KHIEM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/612,229

Applicant(s)

HENSLEY ET AL.

Examiner

Khiem D. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7, 21-28, 37-55, 58-65, 68 and 71-80 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 21-28, 37-55, 58-65, 68 and 71-80 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 21<sup>st</sup>, 2005 has been entered. A new rejection is made as set forth in this Office Action. Claims (1-7, 21-28, 37-55, 58-65, 68, 71-76 and 77-80) are pending in the application.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

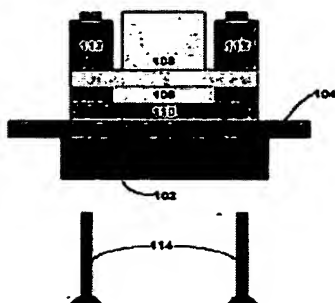
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 21-28, 37-55, 58-65, 68, 71-76 and 77-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA) of this application in view of Tokunoh et al. (U.S. Patent 5,543,363) and Yang et al. (U.S. Patent 6,09,902).

In re claim 1, AAPA discloses a method to assemble a pre-curved bolster plate **102** to one side of a substrate **104** having a first side (top) and a second side (bottom), comprising: attaching a component **106** to an electrical contact area on the first side of the substrate **104**; and attaching the bolster plate **102** on the second side of the substrate

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104, wherein the bolster plate 102 is attached to the second side opposite the electrical contact area on the first side of the substrate 104 (Description of the Prior Art, lines 3-22 and FIG. 1).



(PRIOR ART)

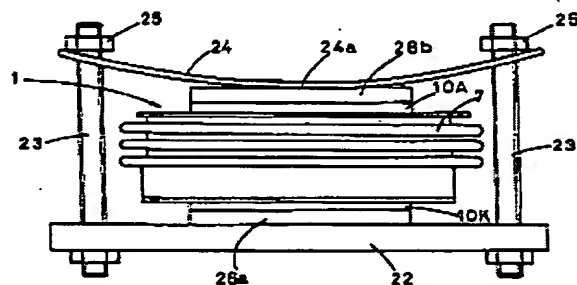
FIG. 1

AAPA does not explicitly disclose that the bolster plate is a pre-curved bolster plate that has a radius of curvature where the radius is pre-calculated by a method.

Tokunoh, however, discloses attaching a pre-curved bolster plate 24 on the second side (top) of the substrate 26b opposite to the electrical contact area on the first side (bottom) of the substrate wherein the pre-curved bolster plate has a radius of curvature where the radius is pre-calculated by a method (col. 3, lines 38-60 and FIG. 3).

FIG. 3 (BACKGROUND ART)

21



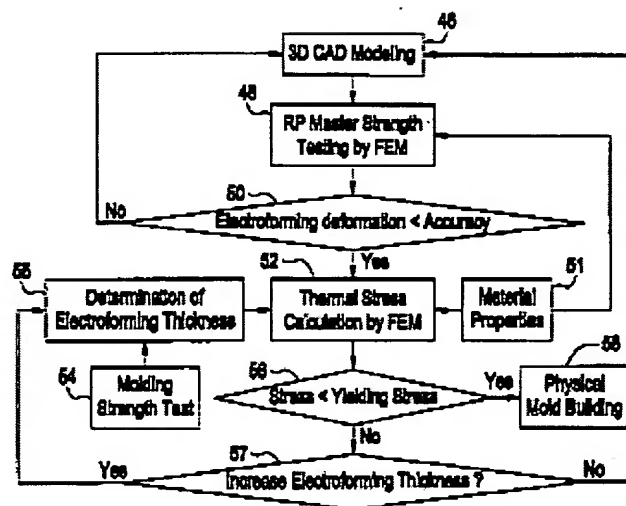
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Tokunoh to enable the process of attaching a pre-curved bolster plate on the second side of the substrate of AAPA to be performed and furthermore to protect the semiconductor element 1 (Abstract, Tokunoh).

Neither AAPA nor Tokunoh explicitly discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software; and determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius.

Yang, however, discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software (3D CAD) (col. 7, lines 19-30 and FIG. 3); and

determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius (col. 7, lines 31-41 and FIG. 3).

FIG. 3



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Tokunoh, and Yang to enable the process of pre-calculated the radius of curvature of the pre-curved bolster plate using computer aided design software and the finite element analysis software of AAPA and Tokunoh to be performed and furthermore to minimize the manufacturing time and cost while satisfy the tooling requirement (Abstract, Yang).

In re claim 2, AAPA discloses that the component 106 is a land grid array (LGA) component (Description of the Prior Art, page 1, lines 14-24).

In re claim 3, AAPA discloses that the substrate **104** is selected from a group of substrates consisting printed circuit board (PCB), multi-chip module (MCM), and a flexible substrate (Description of the Prior Art, page 2, lines 3-8).

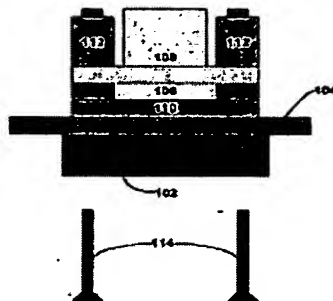
In re claim 4, AAPA discloses that the pre- curved bolster plate **106** includes a material selected from the group consisting a stainless steel alloy, powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy (Description of the Prior Art, page 2, lines 9-27).

In re claim 5, Tokunoh discloses that the pre-curved bolster plate **24** has a spherical curvature (FIG. 3).

In re claim 6, Tokunoh discloses that the pre- curved bolster plate **24** has a cylindrical curvature (FIG. 3).

In re claim 7, there is no evidence indicating the radius of curvature of the pre-curved bolster plate is critical and it has been held that it is not inventive to discover the optimum or workable range of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05. Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

In re claim 21, AAPA discloses a method for providing support to a substrate, the method comprising: attaching a component 106 to an electrical contact area on the first side of the substrate 104; and attaching the bolster plate 102 on the second side of the substrate 104, wherein the bolster plate 102 is attached to the second side opposite the electrical contact area on the first side of the substrate 104 (Description of the Prior Art, lines 3-22 and FIG. 1).



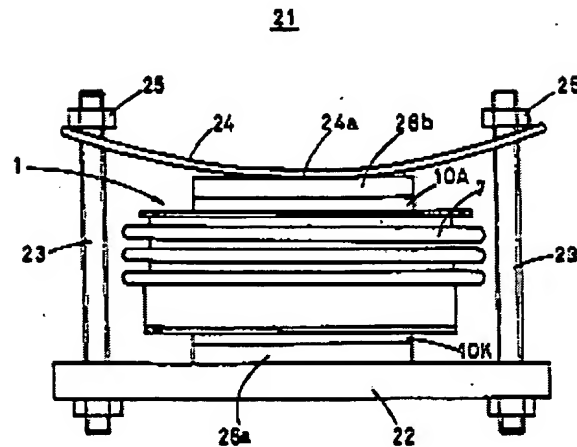
(PRIOR ART)

FIG. 1

AAPA does not explicitly disclose that the bolster plate is a pre-curved bolster plate that has a radius of curvature prior to attachment to the second side of the substrate where the radius is pre-calculated by a method.

Tokunoh, however, discloses attaching a pre-curved bolster plate 24 on the second side (top) of the substrate 26b opposite to the electrical contact area on the first side (bottom) of the substrate wherein the pre-curved bolster plate has a radius of curvature prior to attachment to the second side of the substrate 26b, where the radius is pre-calculated by a method (col. 3, lines 38-60 and FIG. 3).



**FIG. 3 (BACKGROUND ART)**

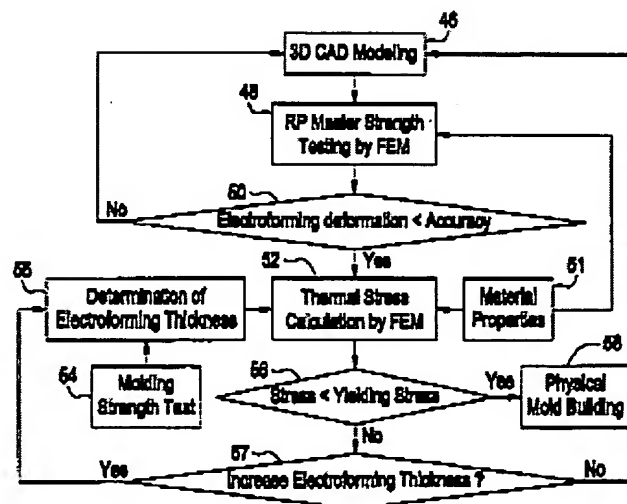
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Tokunoh to enable the process of attaching a pre-curved bolster plate on the second side of the substrate of AAPA to be performed and furthermore to protect the semiconductor element 1 (Abstract, Tokunoh).

Neither AAPA nor Tokunoh explicitly discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software; and determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius.

Yang, however, discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software (3D CAD) (col. 7, lines 19-30 and FIG. 3); and

determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius (col. 7, lines 31-41 and FIG. 3).

FIG. 3



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Tokunoh, and Yang to

enable the process of pre-calculated the radius of curvature of the pre-curved bolster plate using computer aided design software and the finite element analysis software of AAPA and Tokunoh to be performed and furthermore to minimize the manufacturing time and cost while satisfy the tooling requirement (Abstract, Yang).

In re claim 22, AAPA discloses that the component **106** is a land grid array (LGA) component (Description of the Prior Art, page 1, lines 14-24).

In re claim 23, AAPA discloses that the substrate **104** is selected from a group of substrates consisting printed circuit board (PCB), multi-chip module (MCM), and a flexible substrate (Description of the Prior Art, page 2, lines 3-8).

In re claim 24, AAPA discloses that the pre- curved bolster plate **106** includes a material selected from the group consisting a stainless steel alloy, powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy (Description of the Prior Art, page 2, lines 9-27).

In re claim 25, Tokunoh discloses that the pre-curved bolster plate **24** has a spherical curvature (FIG. 3).

In re claim 26, Tokunoh discloses that the pre- curved bolster plate **24** has a cylindrical curvature (FIG. 3).

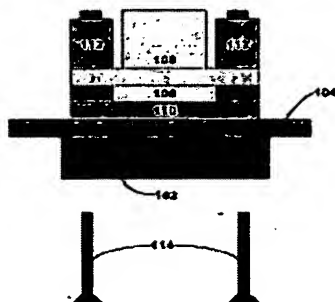
In re claim 27, there is no evidence indicating the radius of curvature of the pre-curved bolster plate is critical and it has been held that it is not inventive to discover the optimum or workable range of a result-effective variable within given prior art conditions by routine experimentation. See MPEP § 2144.05. Note that the specification contains

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no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

In re claim 28, AAPA discloses a substrate support assembly produced in accordance with the method of claim 21 (FIG. 1).

In re claim 37, AAPA discloses a method for coupling a plate member to an electrical packaging assembly, the method comprising: providing an electrical packaging assembly; providing a plate member 102; disposing the plate member 102 against the electrical packaging assembly 104; flexing the plate member 102 towards the electrical packaging assembly 104; and coupling the flexed plate member 102 to the electrical packaging assembly 104 (Description of the Prior Art, lines 3-22 and FIG. 1).



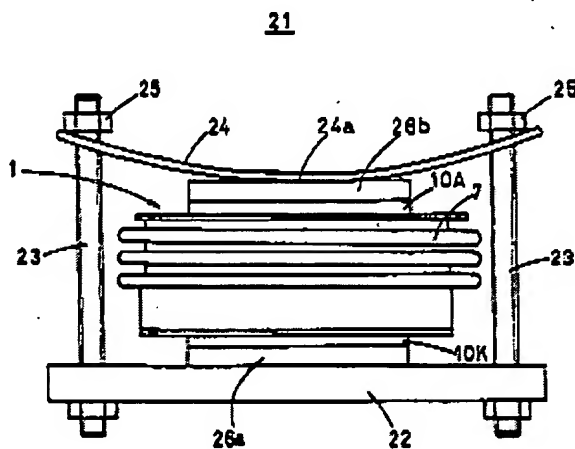
(PRIOR ART)

FIG. 1

AAPA does not explicitly disclose that the bolster plate is a pre-curved bolster plate that has a radius of curvature prior to attachment to the second side of the substrate where the radius is pre-calculated by a method.

Tokunoh, however, discloses attaching a pre-curved bolster plate 24 on the second side (top) of the substrate 26b opposite to the electrical contact area on the first side (bottom) of the substrate wherein the pre-curved bolster plate has a radius of curvature prior to attachment to the second side of the substrate 26b, where the radius is pre-calculated by a method (col. 3, lines 38-60 and FIG. 3).

FIG. 3 (BACKGROUND ART)



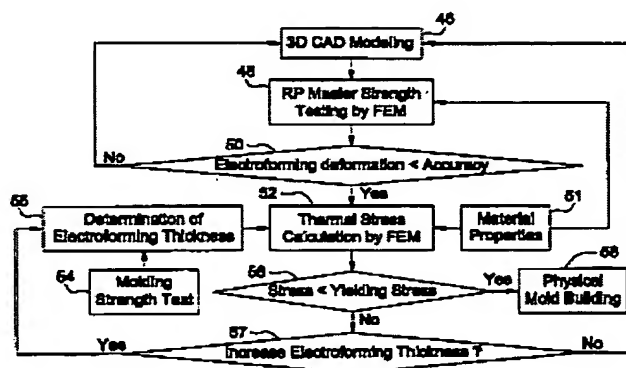
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Tokunoh to enable the process of attaching a pre-curved bolster plate on the second side of the substrate of AAPA to be performed and furthermore to protect the semiconductor element 1 (Abstract, Tokunoh).

Neither AAPA nor Tokunoh explicitly discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial

radius, by use of a computer aided design software; and determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius.

Yang, however, discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software (3D CAD) (col. 7, lines 19-30 and FIG. 3); and

FIG. 3



determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius (col. 7, lines 31-41 and FIG. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Tokunoh, and Yang to enable the process of pre-calculated the radius of curvature of the pre-curved bolster plate using computer aided design software and the finite element analysis software of AAPA and Tokunoh to be performed and furthermore to minimize the manufacturing time and cost while satisfy the tooling requirement (Abstract, Yang).

In re claim 38, **Tokunoh** discloses that flexing comprises curving opposed ends of the plate member **24** towards a substrate **26b** of the electrical packaging assembly (FIG. 3).

In re claim 39, **Tokunoh** discloses that the flexing comprises curving opposed ends of the plate member **24** towards a substrate **26b** of the electrical packaging assembly until the plate member is generally flushed against the substrate **26b** (FIG. 3).

In re claim 40, **AAPA** discloses that the electrical packaging assembly comprises an electrical component having a plurality of leads attached to an electrical contact area of a substrate (FIG. 1).

In re claim 41, **AAPA** discloses that the electrical packaging assembly comprises an electrical component having a plurality of leads attached to an electrical contact area of said substrate (FIG. 1).

In re claim 42, **Tokunoh** discloses that the plate member **24** is stamped to achieve a spherical curvature (FIG. 3).

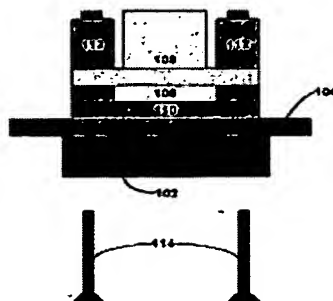
In re claim 43, **Tokunoh** discloses that the plate member **24** is stamped to achieve a cylindrical curvature (FIG. 3).

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In re claim 44, AAPA discloses that the plate member is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy (Description of the Prior Art, page 2, lines 9-27).

In re claim 45, AAPA discloses that the plate member is fabricated from a material selected from the group of materials consisting a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, carbon steel alloy, a magnesium alloy, and an aluminum alloy (Description of the Prior Art, page 2, lines 9-27).

In re claim 46, AAPA discloses a method for assembling a bolster plate to circuit member, the method comprising: providing a circuit member **104, 108**; disposing a bolster plate **102** against the circuit member **104, 108**; curving the bolster plate towards the circuit member **104** to change the curved bolster plate into a flat bolster plate **102**; and coupling the flat bolster plate **102** to the circuit member **104** (Description of the Prior Art, lines 3-22 and FIG. 1).



(PRIOR ART)

FIG. 1

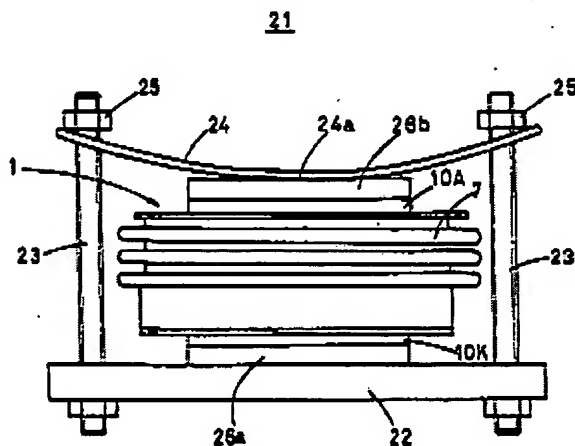


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AAPA does not explicitly disclose that the bolster plate is a pre-curved bolster plate that has a radius of curvature prior to attachment to the second side of the substrate where the radius is pre-calculated by a method.

Tokunoh, however, discloses attaching a pre-curved bolster plate 24 on the second side (top) of the substrate 26b opposite to the electrical contact area on the first side (bottom) of the substrate wherein the pre-curved bolster plate has a radius of curvature prior to attachment to the second side of the substrate 26b, where the radius is pre-calculated by a method (col. 3, lines 38-60 and FIG. 3).

FIG. 3 (BACKGROUND ART)



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA and Tokunoh to enable the process of attaching a pre-curved bolster plate on the second side of the substrate of AAPA to be performed and furthermore to protect the semiconductor element 1 (Abstract, Tokunoh).

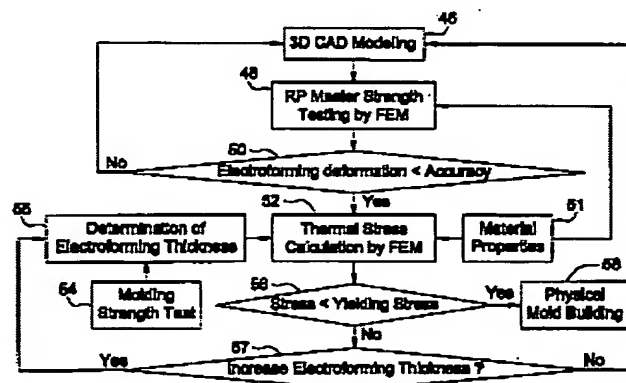
Neither AAPA nor Tokunoh explicitly discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an

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initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software; and determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius.

Yang, however, discloses that the radius of curvature of the pre-curved bolster plate is pre-calculated by a method comprising: estimating an initial radius of curvature of the pre-curved bolster plate by use of a hand calculation, based upon a uniform load from a clamping force to be applied on the component that will be attached to the substrate; modeling the pre-curved bolster plate with the initial radius, by use of a computer aided design software (3D CAD) (col. 7, lines 19-30 and FIG. 3); and

FIG. 3



determining a final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the initial radius to the final radius (col. 7, lines 31-41 and FIG. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of AAPA, Tokunoh, and Yang to enable the process of pre-calculated the radius of curvature of the pre-curved bolster plate using computer aided design software and the finite element analysis software of AAPA and Tokunoh to be performed and furthermore to minimize the manufacturing time and cost while satisfy the tooling requirement (Abstract, Yang).

In re claim 47, Tokunoh discloses that curving comprises curving opposed ends of the bolster plate 24 towards a circuit member (FIG. 3).

In re claim 48, Tokunoh discloses that the curving comprises curving opposed ends of the bolster plate 24 towards a circuit member until the bolster plate is generally flushed against the circuit member (FIG. 3).

In re claim 49, AAPA discloses that the circuit member includes an electrical contact area having a plurality of leads attached thereto (FIG. 1).

In re claim 50, AAPA discloses that the circuit member includes an electrical contact area having a plurality of leads attached thereto (FIG. 1).

In re claim 51, Tokunoh discloses that the bolster plate 24 is stamped to achieve a spherical curvature (FIG. 3).

In re claim 52, **Tokunoh** discloses that the bolster plate 24 is stamped to achieve a cylindrical curvature (FIG. 3).

In re claim 53, **AAPA** discloses that the bolster plate is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy (Description of the Prior Art, page 2, lines 9-27).

In re claim 54, **AAPA** discloses that the bolster plate is fabricated from a material selected from the group of materials consisting a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, carbon steel alloy, a magnesium alloy, and an aluminum alloy (Description of the Prior Art, page 2, lines 9-27).

In re claim 55, **AAPA** discloses an assembly produced in accordance with the method of claim 46 (FIG. 1).

In re claim 58, **Tokunoh** discloses that the radius of curvature is pre-calculated such that the pre-curved bolster plate 24 inherently deflects into a flat plate after a clamping force is applied to the component which is assembled on the substrate and to the pre-curved bolster plate which is assembled on the substrate (col. 3, lines 38-60 and FIG. 3).

In re claim 59, **Tokunoh** discloses that the pre-curved bolster plate 24 has an entire surface that is in contact with the substrate when a clamping force is applied to the pre-curved bolster plate and to the substrate (col. 3, lines 38-60 and FIG. 3).

In re claim 60, Tokunoh discloses that the method of claim 1, further comprising: clamping the component and the bolster plate 24 to the substrate (col. 3, lines 38-60 and FIG. 3).

In re claim 61, Tokunoh discloses that the method of claim 1, further comprising: clamping the component and the bolster plate 24 to the substrate by use of a clamp (col. 3, lines 38-60 and FIG. 3).

In re claim 62, Tokunoh discloses that the method of claim 1, further comprising: clamping the component and the bolster plate 24 to the substrate by bolting a clamp the substrate (col. 3, lines 38-60 and FIG. 3).

In re claim 63, Tokunoh discloses that the method of claim 1, further comprising: clamping the component to the substrate by bolting a clamp to the substrate by use of a bolt and a spring (col. 3, lines 38-60 and FIG. 3).

In re claim 64, AAPA discloses an assembly produced in accordance with the method of claim 1 (FIGS. 1).

In re claim 65, Tokunoh discloses that the radius of curvature is pre-calculated such that the pre-curved bolster plate deflects into a flat plate after a clamping force is applied to the component which is assembled on the substrate and to the pre-curved bolster plate which is assembled on the substrate (col. 3, lines 38-60 and FIG. 3).

In re claim 68, Tokunoh discloses that the radius of curvature is pre-calculated such that the plate member deflects into the flat plate member after a clamping force applied to the electrical packaging assembly and to the plate member which is assembled on the electrical packaging assembly (col. 3, lines 38-60 and FIG. 3).

In re claim 71, Tokunoh discloses that the radius of curvature is pre-calculated such that the curved bolster plate 24 deflects into the flat bolster plate after a clamping force is applied to the circuit member and to the curved bolster plate which is assembled on the circuit member (col. 3, lines 38-60 and FIG. 3).

In re claim 72, Tokunoh discloses that the curved bolster plate 24 has an entire surface that is in contact with the circuit member when a clamping force is applied to the curved bolster plate and to the circuit member (col. 3, lines 38-60 and FIG. 3).

In re claim 73, Tokunoh discloses that coupling the flat bolster plate comprises: clamping a component and the bolster plate 24 to the circuit member (col. 3, lines 38-60 and FIG. 3).

In re claim 74, Tokunoh discloses that coupling the flat bolster plate comprises: clamping a component and the bolster plate 24 to the circuit member by use of a clamp (col. 3, lines 38-60 and FIG. 3).

In re claim 75, Tokunoh discloses that coupling the flat bolster plate comprises: clamping a component and the bolster plate 24 to the circuit member by bolting a clamp to the circuit member (col. 3, lines 38-60 and FIG. 3).

In re claim 76, Tokunoh discloses that coupling the flat bolster plate comprises: clamping a component to the circuit member by bolting a clamp to the circuit member by use of a bolt and a spring (col. 3, lines 38-60 and FIG. 3).

In re claim 77, AAPA in combination with Tokunoh and Yang discloses that the method of claim 1, further comprising: if the bolster plate with the final radius will not deflect to flat plate after the clamping force is applied to the component, substrate, and

pre-curved bolster plate, then determining a new radius of curvature for the pre-curved bolster plate; modeling the pre-curved bolster plate with the new radius, by use of a computer aided design software; and determining a new final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the new radius to the new final radius (col. 3, lines 38-60 and FIG. 3, Tokunoh) and (col. 7, lines 19-41 and FIG. 3, Yang).

In re claim 78, AAPA in combination with Tokunoh and Yang discloses that the method of claim 21, further comprising: if the bolster plate with the final radius will not deflect a flat plate after the clamping force applied to the component, substrate, and pre-curved bolster plate, then determining a new radius of curvature for the pre-curved bolster plate; modeling the pre-curved bolster plate with the new radius, by use of a computer aided design software; and determining a new final radius of curvature by use of a finite element analysis software so that the pre-curved bolster plate will deflect to a flat plate after the clamping force is applied to the component, substrate, and pre-curved bolster plate, wherein the step determining the final radius of curvature comprises modifying the new radius to the new final radius (col. 3, lines 38-60 and FIG. 3, Tokunoh) and (col. 7, lines 19-41 and FIG. 3, Yang).

In re claim 79, AAPA in combination with Tokunoh and Yang discloses that the method of claim 37, further comprising: if the plate member with the final radius will not deflect to a flat plate after the clamping force is applied to the electrical packaging

assembly and plate member, then determining a new radius of curvature for the plate member; modeling the plate member with the new radius, by use of a computer aided design software; and determining a new final radius of curvature by use of a finite element analysis software so that the plate member will deflect to a flat plate after the clamping force is applied to the electrical packaging assembly and plate member, wherein the step of determining the final radius of curvature comprises modifying the new radius to the new final radius (col. 3, lines 38-60 and FIG. 3, Tokunoh) and (col. 7, lines 19-41 and FIG. 3, Yang).

In re claim 80, AAPA in combination with Tokunoh and Yang discloses that the method of claim 46, further comprising: if the curved bolster plate with the final radius will not deflect to a flat plate after the clamping force is applied to the circuit member and curved bolster plate, then determining a new radius of curvature for the curved bolster plate; modeling the curved bolster plate with the new radius, by use of a computer aided design software; and determining a new final radius of curvature by use of a finite element analysis software so that the curved bolster plate will deflect to a flat plate after the clamping force is applied to the circuit member and curved bolster plate, wherein the step of determining the final radius of curvature comprises modifying the new radius to the new final radius (col. 3, lines 38-60 and FIG. 3, Tokunoh) and (col. 7, lines 19-41 and FIG. 3, Yang).

***Response to Applicant's Arguments and Amendment***

Applicant's arguments filed June 21<sup>st</sup>, 2005 have been fully considered but they are not persuasive.



Applicants contend that in the Tustaniwskyj et al. (U.S. Patent 6,042,388) reference, herein known as Tustaniwskyj, there is no explicit or implicit disclosure about a method for pre-calculating a radius of curvature as recited in the claims.

In response to Applicants' contention that in the Tustaniwskyj et al. (U.S. Patent 6,042,388) reference, there is no explicit or implicit disclosure about a method for pre-calculating a radius of curvature as recited in the claims. Examiner respectfully submits that Applicants' argument is moot in view of the newly discovered references to the applicant's admitted prior art (AAPA) of this application in combination with Tokunoh et al. (U.S. Patent 5,543,363) and Yang et al. (U.S. Patent 6,09,902) applied under 35 U.S.C. 103(a) rejection presented in this Office Action.

For this reason, Examiner holds the rejection proper.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D. Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2823

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K.N.  
September 1<sup>st</sup>, 2005



**W. DAVID COLEMAN  
PRIMARY EXAMINER**